

## CLAIMS

We Claim:

- 5           1.     A method, comprising:
- a)     providing
- i)     a nucleotide cyclase enzyme;
- ii)    a fluorescently labeled substrate for said nucleotide cyclase
- enzyme; and
- 10           iii)   one or more test compounds; and
- b)     contacting said nucleotide cyclase enzyme with said fluorescently
- labeled substrate and said test compound; and
- c)     determining the level of fluorescence of said fluorescently labeled
- substrate.
- 15           2.     The method of Claim 1, further comprising the step of comparing said level of
- fluorescence of said fluorescently labeled substrate in the presence of said test compound to
- the level of said fluorescence in the absence of said test compound.
- 20           3.     The method of Claim 2, wherein said level of fluorescence is increased in the
- presence of said test compound relative to in the absence of said test compound.
4.     The method of Claim 1, wherein said nucleotide cyclase enzyme is a guanylyl
- cyclase.
- 25           5.     The method of Claim 1, wherein said nucleotide cyclase enzyme is an adenylyl
- cyclase enzyme.
6.     The method of Claim 1, wherein said cyclase is a soluble cyclase.

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7. The method of Claim 1, wherein said nucleotide cyclase enzyme is an orphan receptor.

8. The method of Claim 1, wherein said fluorescently labeled substrate is  
5 fluorescently labeled GTP $\gamma$ S.

9. The method of Claim 1, further comprising the step of providing an activator of said nucleotide cyclase.

10. The method of Claim 1, wherein said nucleotide cyclase is a VC1-ACGC mutant of type II adenylyl cyclase.

11. The method of Claim 1, wherein said method is a high-throughput method.

12. The method of Claim 1, wherein said test compound is a suspected ligand of said nucleotide cyclase enzyme.

13. The method of Claim 1, wherein said test compound is a suspected activator of said nucleotide cyclase enzyme.

14. The method of Claim 1, wherein said test compound is a suspected inhibitor of said nucleotide cyclase enzyme.

15. The method of Claim 1, wherein said nucleotide cyclase enzyme is membrane  
25 bound.

16. A kit, comprising  
a) a nucleotide cyclase enzyme; and  
b) a fluorescently labeled substrate for said nucleotide cyclase enzyme.

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17. The kit of Claim 16, further comprising instructions for using said kit for screening one or more test compounds.

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18. The kit of Claim 16, further comprising an activator of said nucleotide cyclase.

19. The kit of Claim 16, wherein said nucleotide cyclase is a VC1-ACGC mutant of type II adenylyl cyclase.

20. The kit of Claim 16, wherein said fluorescently labeled substrate is  
10 fluorescently labeled GTP $\gamma$ S.